



Glossary

GLOSSARY

<u>Item</u>	<u>Explanation</u>
AADT	Average Annual Daily Traffic.
Acid precipitation precursors	Acid rain precursors; NO _x and SO _x as an example.
Act, The	The Manitoba Environment Act.
Activated Sludge	The biomass mixture consisting of bacteria and protozoa feeding on raw or settled wastewater.
Aerobic	In the presence of oxygen.
Allochthonous	Food material reaching an aquatic community in the form of dead or decaying organic matter.
Alteration	To change a development or a proposal or to close, shut down or terminate a development where the alteration causes or is likely to cause a significant change in the effects of the development on the environment.
Ambient	Surrounding, encircling - pertaining to any local non-point source conditions such as temperature, air quality or noise levels.
Anaerobic	The absence of free or bound oxygen.
Ancillary	Additional processes / procedures above normal operation.
Anoxic	The absence of free oxygen, dissolved oxygen is less than 0.5 mg/L.
Anthropogenic	Cause, produced or derived from human activities.
Aquifer	A geological formation of permeable rock, sand, or gravel that conducts groundwater and yields significant quantities of water to springs and wells.
Archaeology	The scientific study of past human cultures by analyzing the material remains.
Bedrock	Solid rock that underlies soil, sand, clay, gravel, and loose materials on the Earth's surface.
Benthic	Dwelling on, or pertaining to, the bottom of a body of water.
Bentonite	A colloidal clay formed from volcanic ash that can absorb large amounts of water and expands greatly in doing so. It is often used as a liner or seal in soils.
Berm	A sloped wall or embankment used to prevent the inflow or outflow of material into/from an area.
Biosolids	Nutrient-rich organic residual materials resulting from the treatment of wastewater which are often used as fertilizer.
BLTO	Brandon Land Title Office.
BOD	Biochemical Oxygen Demand.
BOD₅	5-Day Biochemical Oxygen Demand.
Calcareous	Containing a large amount of calcium carbonate.
CBOD₅	Carbonaceous 5-day Biochemical Oxygen Demand.
CEC	Clean Environment Commission.
Chlorination	The use of chlorine compounds such as Cl ₂ , NaOCl, Ca(OCl) ₂ and ClO ₂ for the purpose of disinfection.
Citric Acid	A weak organic acid used to clean membranes.

Class 5 Forestry	Moderately severe land limitations to the growth of commercial forests.
Class 6 Forestry	Severe land limitations to the growth of commercial forests.
Class 8 Forestry	Unclassified area – unmapped area.
Class 2 Soils	Soils with moderate limitations that restrict the range of crops or require moderate conservation practices.
Class 3 Soils	Soils with moderately severe limitations that restrict the range of crops or require special conservation practices.
Class 4 Soils	Soils with severe limitations that restrict the range of crops or require special conservation practices.
Class 2 Ungulates	Very slight land limitations to the production of ungulates.
Class 3 Ungulates	Slight land limitations to the production of ungulates.
Class 4 Ungulates	Moderate land limitations to the production of ungulates.
Class 5 Ungulates	Moderately severe land limitations to the production of ungulates.
Class 8 Ungulates	Unclassified area – unmapped area.
Class 5 Waterfowl	Moderately severe land limitations to the production of waterfowl.
Class 6 Waterfowl	Severe land limitations to the production of waterfowl.
Class 7 Waterfowl	Such severe land limitations that almost no waterfowl are produced.
Class 8 Waterfowl	Special cases – unmapped area.
Clay	A fine-textured, sedimentary or residual deposit consisting of hydrated silicates of aluminum mixed with various impurities
CLI	Canada Land Inventory.
Constant head test	The permeability of a material as measured under a constant fluid level.
CO	Carbon Monoxide.
CO₂	Carbon Dioxide.
CO₂e	Equivalent carbon dioxide; the concentration of carbon dioxide that would cause the same amount of radiative forcing as a given mixture of carbon dioxide and other greenhouse gases.
COD	Chemical Oxygen Demand.
Conductivity	The ability of an aqueous solution to carry electrical current.
Continental Climate	The type of climate found in the interior of the major continents in the middle, or temperate, latitudes. The climate is characterized by a great seasonal variation in temperatures, four distinct seasons, and a relatively small annual precipitation.
Cretaceous Period	A geological time period that occurred during the Mesozoic era and lasted from 144 to 65 million years ago.
DAF / DAFT	Dissolved Air Flotation / Dissolved Air Flotation Thickener unit used in the proposed wastewater treatment process.
Decant	The removal of the top layer of liquid after the solids have settled out.
Dechlorination	The removal or deactivation of potentially toxic chlorine residuals.
Deltaic deposits	Accumulations of sand, silt, clay, and organic matter deposited at the mouth of a river delta.
Denitrification	The process that uses microorganisms to convert nitrate to nitrogen gas in the presence of readily biodegradable organic matter.
DGHTA	Dangerous Goods Handling and Transportation Act.
Diel fluctuations	Fluctuations that occur over a period of 24 hours.

DOC	Dissolved Organic Carbon.
Dissolved oxygen	DO; the amount of oxygen dissolved in water.
Ecoregion	Large unit of land characterized by various items including distinctive climate, ecological features and terrestrial communities.
Ecozone	The largest scale biogeographic division of the earth's surface based on the historic and evolutionary distribution patterns of plants and animals
Effluent	The flow of treated wastewater from a treatment facility.
Emergent plant	A plant rooted in shallow water with most of the stem and leaves above water.
ERP	Emergency Response Plan.
Erosion control techniques	Methods used to prevent or reduce the risk or erosion from disturbed sites. Methods include re-vegetation, riprap and silt fences.
Escherichia coli	A gram-negative, facultatively anaerobic, non-spore-forming bacillus commonly found in the intestinal tracts of humans and other warm-blooded animals. Escherichia coli is used as a primary indicator of recent fecal pollution.
Eutrophic	A body of water typically excessively rich in dissolved nutrients and poor in dissolved oxygen.
Falling head test	The permeability of a material as measured under a decreasing fluid level.
Fauna	All animal life in a particular region.
Ferric chloride	FeCl ₃ ; a metal salt.
Fecal coliform	Bacteria present in the intestinal tract and feces of warm-blooded animals.
Flood plain	Area of land adjacent to a watercourse that is covered by water during a flood.
Flora	All plant life and vegetation in a particular region.
Flow Attenuation	A process to achieve a near constant flow rate by damping flow rate variations to improve the performance of downstream processes and reduce the size and cost of facilities.
Forcemain	Pressurized pipeline.
Geocomposite	Any combination of geotextiles, geomembranes and geogrids/ geonets.
Geomembrane	A synthetic membrane, often made of polyvinyl chloride (PVC) or high density polyethylene (HDPE), and typically used as a soil liner.
Geotextile	A product used as a soil reinforcement agent and as a filter medium. It is made of synthetic fibers manufactured in a woven or loose nonwoven manner to form a blanket-like product.
Greenhouse gas	GHG; predominately CO ₂ , CH ₄ , N ₂ O, PFCs, HFCs, and SF ₆ .
Groundwater	Water that exists beneath the earth's surface in underground streams and aquifers.
Hazard	A source of risk that does not necessarily imply potential for occurrence.
HC	Hydrocarbons; compounds composed of carbon and hydrogen.
Heritage resource	Item of archaeological significance.
HDPE	High Density Polyethylene
Hydrogeology	The study of the distribution of groundwater.
Hydrology	The study of the distribution and movement of water.
Hydrometric station	An active water level and streamflow station that collects surface water quality and sediment data.
Hytex Ltd.	One of Canada's largest hog producers headquartered in La Broquerie, Manitoba. Springhill Farms L.P. is a subsidiary of Hytex Ltd.

Influent	The flow of wastewater into the treatment facility.
IWWTF	Industrial Wastewater Treatment Facility
Jurassic Period	A historical time interval that occurred during the Mesozoic Era and lasted from 144 to 208 million year ago.
Labour Force Participation Rate	The percentage of the population over the age of 15 that are employed.
Lacustrine	Sediment deposits related to a lake.
Lagoon / Cell	A large relatively shallow earthen structure commonly used for the storage, stabilization and treatment of liquid waste.
Limestone	A sedimentary rock, mainly calcium based, deposited by the remains of marine animals.
Loam	A loose mixture of clay, sand, and silt.
Local	Within 3 km (1.9 mi).
Magnesium Hydroxide	MgOH; chemical used to adjust the pH of wastewater.
m.a.s.l.	Metres Above Sea Level.
MBR	Membrane Bioreactor; A biological reactor (bioreactor) with suspended biomass and solids separation by microfiltration membranes used for wastewater treatment.
Metal salt	A salt of a metal cation and an anion such as Alum ($\text{Al}_2(\text{SO}_4)_3 \cdot 14\text{H}_2\text{O}$), Sodium Aluminate ($\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3$), Ferric Chloride (FeCl_3), Ferrous Chloride (FeCl_2), Ferrous Sulfate ($\text{FeSO}_4 \cdot \text{H}_2\text{O}$) or Ferric Sulfate ($\text{Fe}_2(\text{SO}_4)_3$).
Methane	CH_4 ; an odourless, colorless, flammable gas that is the major constituent of natural gas.
Mitigation	Actions taken to improve site conditions by limiting, reducing or controlling hazards and contamination sources.
Mixed liquor suspended solids	MLSS; suspended solids in a wastewater and activated sludge mixture.
MCPA	(2-methyl-4-chlorophenoxy) acetic acid, $\text{C}_9\text{H}_9\text{ClO}_3$; a powerful and selective phenoxy herbicide.
MPN	Most Probable Number; method used in enumerating microorganisms.
MWQSOG	Manitoba Water Quality Standards, Objectives and Guidelines.
MSDS	Material Safety Data Sheets.
MWSB	Manitoba Water Stewardship Board.
N	Nitrogen.
N_2	Nitrogen gas.
NLTO	Neepawa Land Titles Office.
NO	Nitric Oxide.
NO_x	Nitrous Oxides, Nitrogen oxides.
NFPA	National Fire Protection Association.
NH_3	Ammonia.
NH_4	Ammonium.
NO_2	Nitrogen Dioxide.
Nitrification	The process whereby ammonia is oxidized to nitrate by particular groups of microorganisms.
NO_3	Nitrate.

NOA	Notice of Alteration; required for alterations to a licensed development.
NPRI	National Pollutant Release Inventory.
O₃	Oxidants Ozone / Tropospheric Ozone.
Outfall	The place where effluent is discharged into receiving waters.
Oxidant	A solution containing oxygen that reacts chemically with other materials to produce new substances.
Oxidized	Combined with or having undergone a chemical reaction with oxygen.
Ozone Precursors	VOC, NO _x and CO.
P	Phosphorous.
Permeability	The facility with which a porous mass permits passage of a fluid. Soil permeability is determined using the 'constant head' method or the 'falling head' method.
Permeate	The product of a liquid passing through the pores of a membrane.
pH	A measure of the activity of hydrogen ions (H ⁺) in a solution and, therefore, its acidity, a number usually between 0 and 14, that indicates whether a solution is acidic (pH <7).
Piezometer	A small diameter water well used to measure the hydraulic head of groundwater in aquifers.
PM_{2.5}	Inhalable airborne particles equal or less than 2.5 micrometres in diameter.
PM₁₀	Inhalable airborne particles equal or less than 10 micrometres in diameter.
Point Source	A single identifiable point of emission of pollutants.
Polymer	Chains of simple monomers that form high-molecular-weight substances often used as a flocculant in wastewater treatment.
Potable Water	Water safe for human consumption.
Potentiometric surface	An imaginary surface defined by the level to which water in an aquifer would rise in a well due to the natural pressure in the rocks.
pphm	Parts per hundred million.
ppm	Parts per million, mg/m ³ of air.
Process Wastewater	Wastewater derived from areas involved in the processing of hogs.
Provincial	Within the Province of Manitoba.
PTH	Provincial Trunk Highway, Provincial Highway; a provincial highway in the Province of Manitoba.
QUAL2K	Water quality computer model.
RCMP	Royal Canadian Mounted Police.
R.M.	Rural Municipality.
Regional	Within 10 km (6.2 mi).
Riprap	A foundation or sustaining wall of stones or chunks of concrete thrown together without order.
Rock Filter	A filter comprised of bed of rocks often used for water polishing or algae removal. Reliably reduces BOD and TSS but not ammonia.
Sand	Material containing loose, unconsolidated accumulations of sediment.
Sanitary Wastewater	Wastewater produced from sanitary facilities including sinks, toilets and urinals.
Screening	The use of screens to remove solids and debris from wastewater.
Screenings	Materials, such as bone chips and straw, removed during screening.

Sedge	A grass-like plant often growing in wet areas.
Sediment	Any particulate matter that can be transported by fluid flow and which eventually is deposited as a layer of solid particles on the bed or bottom of a body of water or other liquid.
Seepage	The movement of water through the soil from unlined canals, ditches, laterals, watercourses, rivers, water storage facilities, or subsurface waters.
Shale	A consolidated clay rock which possesses closely-spaced well defined laminates.
Silt	Material of an earthy character intermediate in grain-size between sand and clay, with greater than 50% passing through a No. 200 sieve.
Silt Fences	A temporary barrier used to intercept sediment-laden runoff from small areas.
Sludge	A slurry or concentrated suspension of solids that accumulates at the bottom of a settling tank, clarifier or anaerobic digester or lagoon.
SO₂	Sulphur Dioxide, a pungent, colorless, gaseous pollutant formed primarily by the combustion of fossil fuels.
Sodium hypochlorite	NaOCl; commonly known as bleach, used to clean the membrane bioreactor.
Sulphate	SO ₄ ; a salt of sulphuric acid, can be found in water.
Soil series	A grouping of soils that have similar soil profiles and are developed from a particular kind of parent material.
Springhill Farms	Springhill Farms L.P.; A pork processing facility in the Town of Neepawa, MB, source of wastewater for proposed IWWTF, subsidiary of Hytek Ltd.
Sugar	Carbon source added to post anoxic tank for nitrate removal.
Supernatant	The liquid that remains after suspended particles have been removed.
Subsurface	The geological zone beneath the surface of the Earth.
Surface Water	Water that sits or flows above the earth, including lakes, oceans, rivers, and streams.
TDGA	Transportation of Dangerous Goods Act.
Till	Dominantly unsorted and unstratified drift, generally deposited directly by and underneath a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders.
TKN	Total Kjeldahl Nitrogen; the total of the organic nitrogen and ammonia nitrogen.
TN	Total Nitrogen.
TOC	Total Organic Carbon.
Town of Neepawa	A town in Manitoba and Proponent of the proposed IWWTF.
TP	Total Phosphorous.
TSP	Total Suspended Particulates.
TSS	Total Suspended Solids.
Turbidity	A measure of water clarity.
µg	Microgram, 1x10 ⁻⁶ g; A unit of mass.
UV	Ultraviolet light used for disinfection.
Unemployment Rate	The percentage of employable population not working.
Ungulate	Hoofed animal such as deer.
VOC	Volatile Organic Compounds.

WAS	Waste Activated Sludge; the portion of activated sludge that is wasted and not recycled in the activated sludge process.
Weir	A low dam across a stream to raise water levels or divert the flow.
Wetwell	A chamber which is used for collecting liquid, and to which the suction pipe of a pump is attached.
Whitemud River	Receiving waters for the proposed IWWTF treated effluent.